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# Radio Broadcasting

INTERFACE 11/29/21  
Sabrina Reguyal

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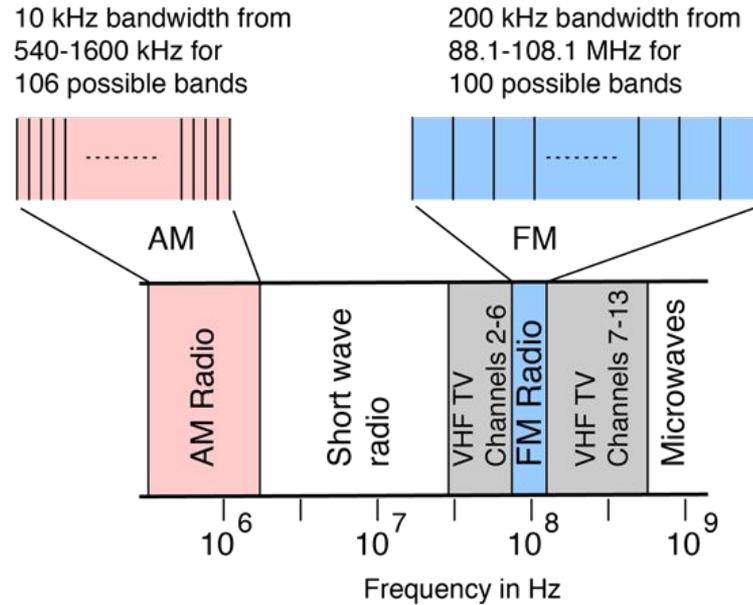
# What is Radio?

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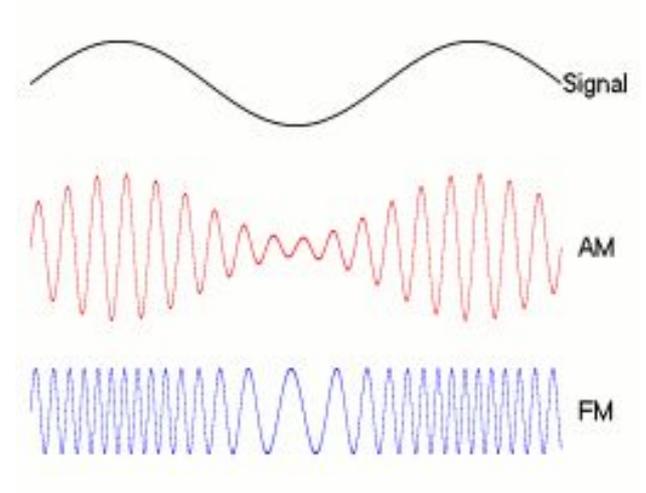
# Closer Look at Radio Broadcast Spectrum



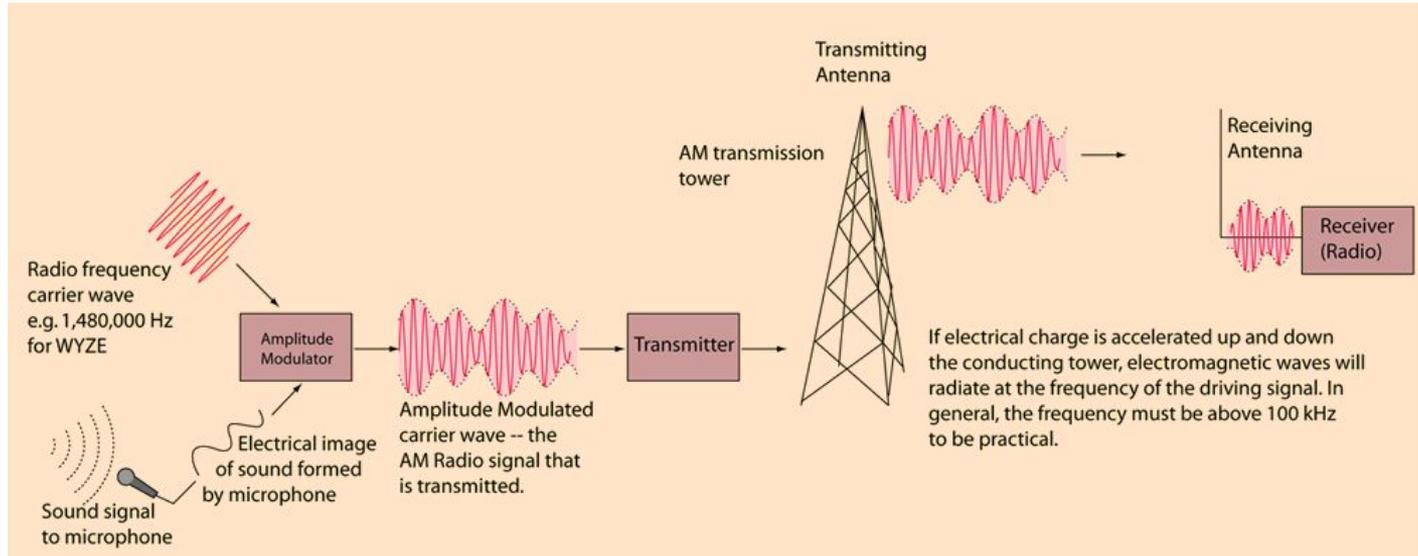
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# AM vs. FM Radio

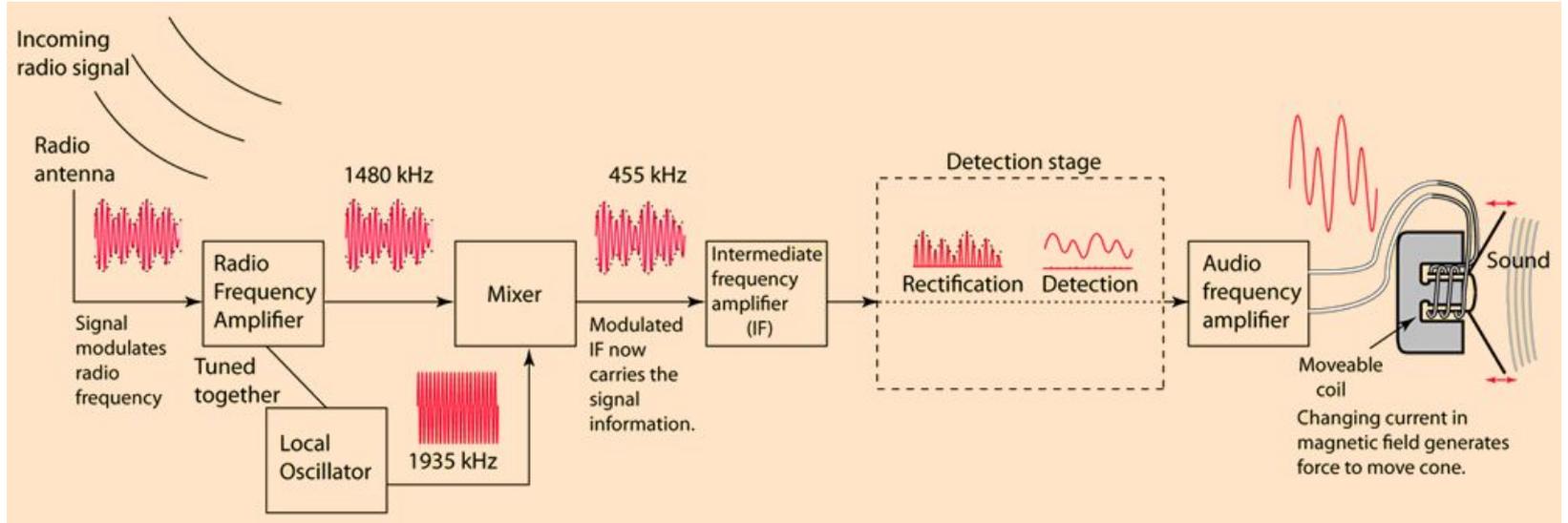
- AM: Amplitude Modulation
- FM: Frequency Modulation
- Other types of modulation exist, used in other applications



# AM Radio Broadcast Example



# AM Radio Receiving Example



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# Radio Technology History

1830 - Michael Faraday establishes principle of EM induction

1885 - Heinrich Hertz produces EM waves, confirms light speed travel

1893 - Nikola Tesla gives first public demonstration of radio in St. Louis

1900-1 - Guglielmo Marconi founds the Marconi Wireless Telegraph Company, Ltd. and transmits and receives signals across the Atlantic



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# More Radio Technology History

1906 - Reginald Fessenden sends the first long-distance transmission of human voice and music (MA -> VA)

1910 - Entertainment broadcasting begins, including radio pioneer Lee De Forest's program, based in the Met Opera House!

1918 - Edwin Armstrong invents the superheterodyne circuit

1920 - First commercial radio station -- an entertainment broadcasting venture called KDKA, based in Wilkinsburg, PA

1933 - Edwin Armstrong develops FM radio

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# Radio Broadcast History

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# Great Depression



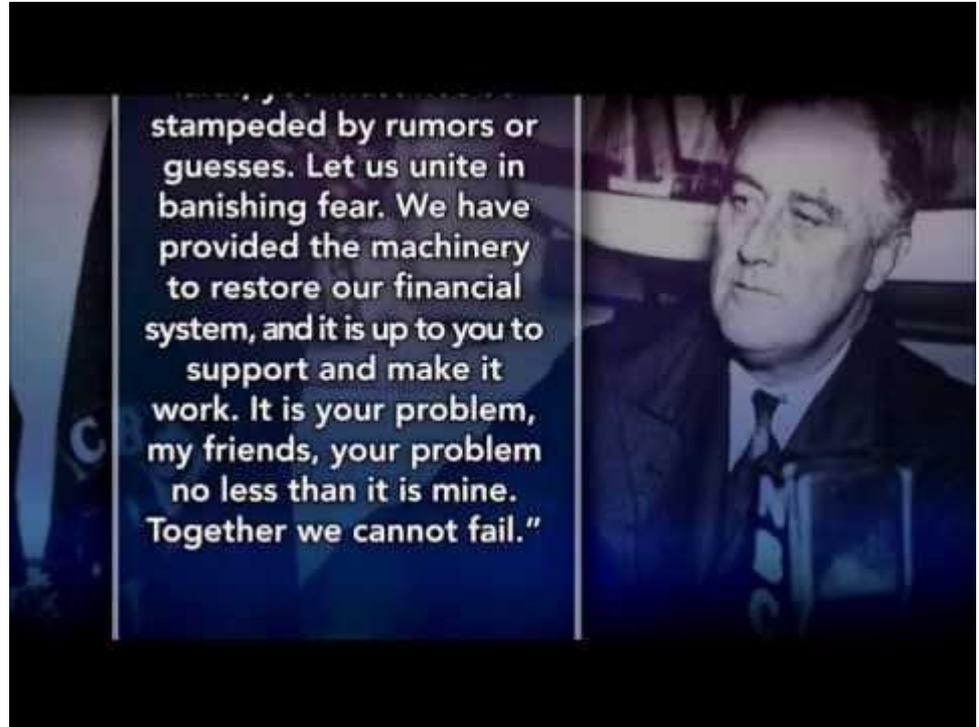
[w]hile movie houses closed, night clubs languished, and theatrical stock companies disappeared, radio boomed. [...] Thousands of families who had purchased much of their household equipment on credit gave up their vacuum cleaners, their cars, and their furniture, but kept up payments on their radios (Settel 68).

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# Fireside Chats

- Evening radio addresses given by FDR between 1933-1944
- Spoke with a familiar tone to millions of Americans about the Great Depression, New Deal, WWII...
- Quelled rumors, responded to newspaper criticism, explained policies directly to Americans





# Nazi Germany

- Goebbels claimed that radio was the "eighth great power" in a 1933 speech
  - reference to Napoleon -- press as the "seventh great power"

Stadt-Land

**Volks-empfangner VE 301**

NORA RADIO GMBH  
BERLIN · CHARLOTTENBURG A.

November 1933

**VE 301W FÜR WECHSELSTROMEMPFAANG**

- wie VE 301 B
- Wechselstrom-Empfänger
- Einzelschalt
- Lautsprecher
- Magnetronenröhre
- Metallgehäuse
- Metallische Gehäuse
- in Holz oder Metall

**VE 301B BATTERIE FÜR BATTERIEEMPFAANG**

- Wechselstrom
- Batteriebetrieb
- Kettenschaltung
- Magnetronen
- Schwingstrom
- Metallgehäuse
- in Holz oder Metall

**VE 301G FÜR GLEICHSTROMEMPFAANG**

- wie VE 301 B
- Gleichstrom-Empfänger
- Einzelschalt
- Lautsprecher
- Magnetronenröhre
- Metallgehäuse
- in Holz oder Metall

Das Volk der Reichsregierung, das Radio ist in der letzten deutschen Handhabung zu tragen, war die Funktion für die Schaffung des Volksempfängers VE 301. Somit ist der erste Radioapparat-Fabrikat aus dem VE 301 in völlig gleichzeitiger Konstruktion und Ausführung. Seine Entwicklung ist das Ergebnis der Gemeinschaftsarbeit der deutschen Funkindustrie. Diese Gemeinschaft ermöglichte, Neben technische Vollkommenheit mit größter Preiswürdigkeit zu verbinden.

Gewalt für elektrische und mechanische Zuverlässigkeit des Empfängers ist dadurch gegeben, daß die Einzelteile wie Transistoren, Kondensatoren, Spulen, Gehäuse usw., sowie auch die fertige Geräte von einer neutralen Sachverständigen-Kommission vorgeprüft und genehmigt werden müssen - in dieser Kommission sind Fachleute, Metall-Fabrikanten und Radio-Industrie-Gesellschaften vertreten. Die Qualität des Empfängers wird durch die gleiche technische Konstruktion während der letzten Entwicklungsarbeiten abgemittelt.

“We want a radio that reaches the people, a radio that works for the people, a radio that is an intermediary between the government and the nation, a radio that also reaches across our borders to give the world a picture of our character, our life, and our work,” Goebbels proclaimed.

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# Edward Murrow

Reported on the London  
Blitz for American  
audiences



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# Radio Free Europe + Radio Liberty

Founded in 1949/1953; merged in 1976

Anti-communist CIA front organization; moved towards funding from Congress in 1972

Widespread public support from Eisenhower's "Crusade for Freedom" campaign; contributions of ~\$1.6 million to expansion of RFE

Notable events: Chernobyl disaster, Czech Velvet Revolution, Glasnost, 1991 August Coup

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# Broadcast Regulation

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# Stuff

Radio Act of 1927 - Establishes Federal Radio Commission -- determine regulatory policy for broadcasting in the U.S.

Communications Act of 1934 - Establishes the FCC as the permanent body to determine regulatory policy of radio and TV in the U.S., subject to Congressional oversight. Fairness Doctrine

1987: Fairness Doctrine abolished

Commerce Clause; Title 47 of Code of Federal Regulations -- regulation of radio

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**Today**

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# Abolishment of the Fairness Doctrine



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## Fireside Chats 2.0



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# Wires and Lights in a Box speech, RTDNA 1958

